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GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



DAN WYANT
DIRECTOR

October 26, 2012

Michael J. Erickson, P.E.
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ARCADIS – U.S. Inc.
10559 Citation Drive, Suite 100
Brighton, Michigan 48116

Dear Mr. Erickson:

SUBJECT: Draft Spring 2012 Bank Conditions Monitoring Report for the Former Plainwell Impoundment and Plainwell No. 2 Dam Area at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (August 2012) (BCM Report)

The Bathymetric Survey at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Time-Critical Removal Action (TCRA) near Plainwell, Michigan, dated September 18, 2012

The Review of Hydraulic Modeling Near the Former Plainwell Dam in Plainwell, Michigan to Evaluate Effects of Remaining Stored Sediment of Bank Stresses

The Former Plainwell Impoundment and Plainwell No. 2 Dam Area Fall 2012 Bank Repair Plan Technical Memorandum, dated October 15, 2012

The Michigan Department of Natural Resources (MDNR) and the Michigan Department of Environmental Quality (MDEQ) (collectively, the State), in consultation with the Michigan Department of Attorney General, have reviewed the documents listed above and have the following comments:

1. Global Comment: The State is in support of the comments transmitted to ARCADIS by the United States Environmental Protection Agency (USEPA) dated October 15, 2012.
2. Global Comment: The Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) signatories are the USEPA, the State of Michigan (MDEQ and MDNR) and their legal representatives, and Georgia-Pacific, LLC (GP) (and Millennium Holdings, LLC, which has undergone bankruptcy proceedings). The Natural Resource Damage Trustees for the Kalamazoo River Environment (Trustees) are not signatories to the AOC, and while the Trustees' participation is welcome, they do not have decision making or approval authority under the requirements of the AOC. On

Page 1-4 in the BCM Report, the text states, "No immediate maintenance needs to address bank stability were identified by the Trustees following the 2011 bank inspection." Further references to the Trustees' approval authority are made throughout the documents. The State wishes to clarify that the Trustees provide valuable input regarding implementation of the removal action, but do not have approval or disapproval authority for required work under the AOC.

3. For future information, the Michigan Department of Attorney General is also a Trustee for the State of Michigan as designated by the Governor.
4. Under Paragraph 15 of the AOC, work to be performed includes cut-back and stabilization of river banks. The USEPA's Comment #2 in its letter dated October 15, 2012, regarding the Report, states, "We observed some areas of continuing erosion in the former Plainwell Impoundment area that are between the US 131 bridge and the pipeline crossing that should be treated with rock. Specifically, RA 6B and 10A need to be addressed. These areas do not have stable banks and continue to erode."

The State concurs with the USEPA's observations of these areas. While the addition of rock may provide stabilization of the banks in these areas, further actions to address the instabilities of the banks in these areas may be needed by GP.

5. Section 1.2.3, Page 1-4, the BCM Report states: "Per section 5.6 of the Former Plainwell Impoundment Design Report (ARCADIS BBL 2007a), 'Banks and riparian habitats observed to be stable after a 2-year storm event will be concluded to be stable.' Multiple flows exceeding the 2-year event flow have occurred since completion of the TCRA in the former Plainwell Impoundment. No immediate maintenance needs to address bank stability were identified by the Trustees following the 2011 bank inspection."

Given the current record low flows and the continued presence of the prism, the State does not agree that observation of a single 2-year event in these circumstances can provide a basis for concluding that the banks in these areas are stable." Page 2-49 of the Design Report states that, "Based on work at other sites, the geomorphic response following the dam removal should occur within a 1- to 5-year time period." The flow levels of the Kalamazoo River are at a record low. Multiple 2-year or greater events are necessary to be indicative of bank stability. The continued presence of the prism also adds to uncertainty for future stability issues. Bank undercutting, sloughing, loss of armoring materials and signs of lateral bank movement have been observed by the USEPA, MDEQ, and MDNR indicating stable banks have not been achieved. Until the observed bank erosion has stabilized after exposure to 3 or more 2-year events, they should not be considered stable.

6. Section 4.1, Page 4-1, second paragraph. Changes less than 6 inches should be included in Table 2 since over time the cumulative effect of the material loss/gain can be significant.

Additionally, the text states "Any observed change of less than half a foot is considered to be insignificant. The absolute value of material loss or deposition is not as important as the geometry of the bank profile from year to year." The absolute value of material loss/gain is important considering polychlorinated biphenyl (PCB) contaminated soils exist in the floodplain. For example, the geometry of the bank may be consistent from year to year, but if the bank is losing material laterally so that it will eventually erode into contaminated material, that is extremely important to recognize. Given the uncertainties associated with the river channels response to the dam removal, all areas of the site need to be carefully considered.

7. Section 4.1, Page 4-1, first bullet. The text states "The profiles of the banks are classified as consistent with the previous year; therefore, immediate bank maintenance is not warranted." This bullet should be removed, as plans for bank work are currently being developed and construction will begin this year.
8. Section 6.3, Page 6-2, first paragraph. There are erosion control measures to protect banks other than coir logs and armoring. The report should provide other examples such as installation of toe wood, root wads, or instream controls like J hooks, or widening of the channel to increase overall stability.
9. Section 6.4, Page 6-3, the BCM Report states: "The bank restoration design considered Trustee concerns related to limiting bank use by wildlife if armor were present. Therefore, less armoring was used in bank restoration than originally designed, which likely reduced the short-term stability of banks restored without armor."

It is important to note for the record that the "original design" was rejected by the USEPA as a bad faith deliverable because it ignored over two years of input from the Trustees, who consistently worked to limit the amount of hard armoring used during the removal action. For accuracy in the BCM Report, the reference to the "original design" should be removed.

10. Section 6.4, Page 6-3, the BCM Report states: "The floodplain excavation included in both TCRAs was completed to a distance 30 feet back from the existing top of bank to create a 'clean buffer' zone. The depths of removal within the clean buffer areas were established to target the removal of soils containing documented PCB concentrations greater than 5 milligrams per kilogram (mg/kg). As a result, there is little risk of exposure to and/or downstream transport of residual PCB containing materials in the floodplain or river bank due to lateral erosion."

This section should clarify that the clean buffer has already eroded in several areas and is continuing to be lost, especially where the channel form is the least stable. As a result, these risks continue to be evaluated and the broad statement regarding "little risk of exposure...or downstream transport" should be modified to reflect these unknowns.

11. The State agrees continuing erosion in the Plainwell No. 1 Dam Impoundment between the US 131 bridge and the pipeline crossing should be treated with rock up to the bankfull elevation. Two areas specifically need to be addressed: RA 6B and 10A and beyond. These areas do not have stable banks and continue to erode and given the constricted stream channel width, it is necessary to provide continuous rock protection along the water line and up the slope to the bankfull elevation. As stated above, Trustee input on addressing erosion issues is valued, but the Trustees do not have approval or disapproval authority for proposals regarding the scope of work for areas 7B, 8B, 9B, and 10A.
12. On Page 4/8 of the fall 2012 Bank Repair Plan Technical Memorandum, the erosion in RA 6B is attributed to the formation of two islands downstream of the US 131 bridge. The text states, "The bridge and islands appear to divert water flow towards the banks in a manner that was not anticipated during the TCRA design." This is further evidence that river stability has not been achieved and supports the State's position that further corrective actions and monitoring will be needed by GP.
13. The mid-channel "prism" of former impoundment sediments remains just above the former Plainwell Dam, and upstream of Mid-Channel Removal Area B. The State believes that the presence of the prism affects flow and results in stresses in bank areas. Although no action on the mid-channel sediments is being requested, these areas should continue to be monitored as the sediments erode.
14. The rock slope on the left bank (facing downstream) at the former dam powerhouse is slumping and should be corrected. The rock relocation proposed in the fall 2012 Bank Repair Plan should be sufficiently anchored/placed to ensure slumping does not occur in future high water events. Appropriate vegetation will need to be established where rock is removed.
15. An additional area of bank erosion has been identified since the previous site visits. The right bank, upstream of U.S. 131 is actively eroding, generally in the vicinity of Removal Area 4A. This is an area where the buffer was of limited utility due to the relatively low elevation of the bank in relation to the river. River flow has apparently eroded the shelf that was present following excavation. Flow is now against the bank in this area and contaminated residuals are eroding

directly into the river. This area should also be evaluated for some kind of bank enhancements.

16. Table 1

The Rosgen reference included is for his WARASS book published in 2006; however, the table provided appears to be from Rosgen's Applied River Morphology book published in 1996. To match current Rosgen Bank Erosion Hazard Index (BEHI) practices, the table needs to be updated by removing the header "Root Density" and changing to "Weighted Root Density", which is the root density divided by the ratio of the root depth to study bank height.

The 2006 reference should be added to Section 8.

17. Table 2

Include justification and/or rationale (in table or text) for whether a bank profile is consistent with the previous year. For example, T-10S indicates the "bank profile consistent with 2011," however; this should say "continued loss of material" as the table includes both vertical and lateral losses.

Include detail (in table or text) how the vertical and lateral changes were calculated/derived. For example, are the loss/gain values included in these columns an average, a maximum, or some other quantification?

Include observed loss/gain values less than 6 inches in parenthesis to show trend over time. For example, NC (0.2).

18. Table 3

Add easting/northing for each area where BEHI's were measured.

ERROR IN CALCULATING BEHI - The table has a fundamental error when calculating BEHI ratings. Some may change both the total score and BEHI classification while others may only change the total score, but still be in the same BEHI range. The apparent flaw is in the 'Root Density Value' calculations. This error was commented on in 2011 and was not revised.

- a. Root Density Value – based on current Rosgen practices, the 'Weighted Root Density' is calculated by multiplying the Root Density assigned in the field (and included in Table 2) by the 'Root Depth/Study Bank Height' ratio. The error in the table is that the 'Root Density' was used to get a BEHI rating, instead of the 'Weighted Root Density'. For example, using C1, the root depth to bank height ratio should be $0.5/5.4 = 0.09$. The assigned Root Density in the field was 80% or 0.80. To calculate a BEHI rating,

multiply 0.8 by 0.09 to get 0.072 (or 7%); this value is used in the BEHI rating curve to yield a value of at least 9, not 2 as shown. This error will impact all Weight Root Density values, and therefore, all total BEHI scores.

- b. Root Depth/Bank Height Value – since this value is apparently shown as a percentage, the units should be identified. Figure 12 – The map should show where the exact BEHI measurements were recorded for each bank segment evaluated.

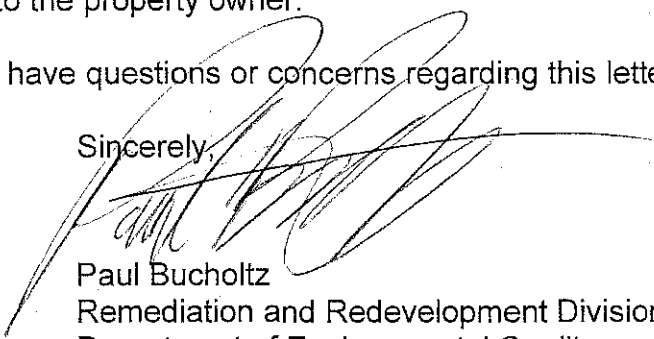
19. MDEQ requests for following data. If the data has been provided, then we request assistance in locating the information.

- a. Bank profile data for all events in this report depicted on Figures 4-11 and 14-17, including the post construction survey. Table of data should include date; transect ID, station number, elevation (or an easting, northing, elevation for every point). Also provide the coordinates and elevations for the starting point (sta 0+00) for each transect.
- b. X, Y, Z for instream sediment survey transects.
- c. X, Y coordinates of BEHI measurements for each year.


20. There is a substantial amount of corrective action necessary this year and a stable channel has yet to be established. Therefore, the State recommends that an additional 2-year monitoring period is needed to ensure that those measures recommended herein are shown to be successful after installation and that the goal of establishing a stable stream channel in addition to stable banks in the former impoundment has been achieved, prior to the transfer of bank monitoring obligations to the property owner.

Please feel free to contact us if you have questions or concerns regarding this letter.

Sincerely,



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cc: ✓ Mr. Ramon Mendoza, USEPA
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Kalamazoo River Superfund Site File